

~~Patent Claims~~

We Claim As our invention

1. Method for configuration of a radio interface between a mobile station (MS) and a base station (BS) of a time-division multiplex mobile radio system for packet data transmission, wherein
 - the transmission from a mobile station (MS) to the base station (BS) is called the uplink direction, and from the base station (BS) to a mobile station (MS) is called the downlink direction,
 - a channel (GPRS-K) is formed by at least one time slot (ts, T, A) per time-division multiplex frame (R), 52 frames (R) being combined to form a macroframe,
 - the packet data transmission from a plurality of mobile stations (MS) takes place via the common channel (GPRS-K),
 - a time slot (ts, A, I) for signalling is provided at cyclic intervals in the channel (GPRS-K), characterized in that
2. Method according to Claim 1, in which the timing advance (TA) for the respective mobile station (MS) is determined from transmissions by the mobile station (MS) in the allocated time slot (ts, A), and the timing advance (TA) is transmitted in a time slot (ts, A) for signalling in the downlink direction to the corresponding mobile station (MS).

- a time slot (ts, A, T) for signalling is provided at cyclic intervals in the channel (GPRS-K), in which

the timing advance (TA) for the respective mobile station (MS) is defined by the base station (BS) from transmissions in the time slots (ts, A) for signalling in the uplink direction and configuration data (TA, PC) for at least one mobile station (MS) are transmitted in a time slot (ts, A) for signalling in the downlink direction.

3. Method according to Claim 1 or 2, in which the timing advance (TA) and values for the transmission power setting (PC) are defined independently of one another.

4. Method according to Claim 3, in which the timing advance (TA) and/or the values for the transmission power setting (PC) are additionally defined from the time slots (ts, T) for packet data transmission.

5. Method according to one of the preceding claims, in which longer transmission block types are used for specific configuration data (TA, PC) in the time slots (ts, A) for signalling in the uplink direction.

6. Method according to one of the preceding claims, in which configuration data (PC) defined in the downlink direction are transmitted in time slots (T) for packet data transmission.

7. Method according to one of the preceding claims, in which the timing advance (TA) for the configuration of the radio interface is provided by the base station (BS) without being controlled by a base station controller (BSC).

8. Method according to one of the preceding claims, in which a plurality of time slots (ts, A) for signalling are combined to form a signalling block (GACCH).
9. Method according to Claim 8,
- 5 in which the time slots (ts, A) for signalling are combined in accordance with a sequence which can be predetermined, remaining time slots (I) being provided for an adjacent cell measurement of the mobile station (MS).
- 10 10. Method according to one of the preceding claims, in which information in time slots (ts, A) for signalling is provided with additional coding and/or is included in the time slots (ts, A) more than once.
11. Method according to one of the preceding claims,
- 15 in which the packet data transmission takes place in both transmission directions independently of one another.
12. Method according to one of the preceding claims, in which the mobile stations (MS) for packet data transmission are additionally designated by abbreviated identifiers (id) and, via the time slots (ts, A) for signalling in the downlink direction, one or more time slots (ts, A) for signalling in the uplink direction are allocated to the mobile stations (MS) by means of indicator messages which contain abbreviated identifiers
- 20 (id) and time slot designations.
13. Method according to one of the preceding claims, in which a self-contained message, which contains the reception level (pm) of the mobile station (MS), is transmitted by a mobile station (MS) per time slot (ts,
- 25 A) for signalling in the uplink direction.
14. Method according to one of the preceding claims,
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in which transmissions from the mobile station (MS) in the time slots (ts, A) for signalling allocated to it are provided [lacuna] access blocks (AB) having an extended preceding and/or subsequent guard time, whose transmission time results from a preceding transmission time, a signalled timing advance (TA) and an offset value (off).

15. Method according to Claim 14, in which the offset value (off) is chosen such that the range which corresponds to it is greater than the distance which the mobile station (MS) can travel between two transmissions for timing advance definitions at the maximum permissible speed.

16. Base station system (BSS) for configuration of a radio interface between a mobile station (MS) and a base station (BS) of a time-division multiplex mobile radio system for packet data transmission, wherein

- the transmission from a mobile station (MS) to the base station (BS) is called the uplink direction, and from the base station (BS) to a mobile station (MS) is called the downlink direction,
 - a channel (GPRS-K) is formed by at least one time slot (ts, T, A) per time-division multiplex frame (R),
 - the packet data transmission from a plurality of mobile stations (MS) takes place via the common channel (GPRS-K),
 - a time slot (ts, A) for signalling is provided at cyclic intervals in the channel (GPRS-K),
- having a control device (BSC) for allocating time slots (ts, A) for signalling to the mobile station (MS) in accordance with a sequence which can be predetermined,
- the allocation being independent of packet data transmission from or to the mobile station (MS), and
 - the timing advance (TA) of the respective mobile station (MS) being defined from transmissions in the time slots (ts, A) for signalling in the uplink direction.

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16. Base station system (BSS) for configuration of a radio interface between a mobile station (MS) and a base station (BS) of a time-division multiplex mobile radio system for packet data transmission, wherein

- 5 - the transmission from a mobile station (MS) to the base station (BS) is called the uplink direction, and from the base station (BS) to a mobile station (MS) is called the downlink direction,
- 10 - a channel (GPRS-K) is formed by at least one time slot (ts, T, A) per time-division multiplex frame (R), 52 frames (R) being combined to form a macroframe,
- 15 - the packet data transmission from a plurality of mobile stations (MS) takes place via the common channel (GPRS-K),
- a time slot (ts, A) for signalling is provided at cyclic intervals in the channel (GPRS-K), having a control device (BSC) for allocating time slots (ts, A) to the mobile station (MS),
- 20 characterized in that the control device (BSC) is distinguished by the fact that just one time slot (ts, A) for signalling for the uplink direction is allocated to the mobile station (MS) after a sequence which can be predetermined, in which
- 25 case the allocation is independent of any packet data transmission, so that the mobile station (MS) transmits in the time slot (ts, A) allocated for signalling, even if the mobile station (MS) does not transmit any packet data for the duration of the current and next macroframe.

17. Base station system according to Claim 16,
[lacuna] the defined timing advance (TA) are transmitted,
as configuration data for a plurality of mobile stations
(MS), in a time slot (ts, A) for signalling in the
downlink direction.

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